

## HEARING

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### PAT Educator Role in Screening

- Help identify hearing impairment during early period of development
- Provide families with access to professional, educational, and consumer organizations associated with hearing loss
- Increase informed decision-making

### Parent Interview

- Review high-risk indicators with case history information
- Review the parent/parent educator questions from page 160 of the Parents as Teachers Model Implementation Guide
- During the interview, visually inspect the head and ears for
  - Odd-shaped ears, low-set ears
  - Growths or skin tags on or near ear
  - Cleft lip or palate
  - Low or wide set eyes
  - Nose deformities

### When to Screen Hearing

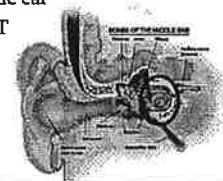
- Older infants and toddlers who have a qualifying risk factor should be screened even if they passed the newborn screening (progressive/developmental loss)
- Children with a positive finding on the High Risk Registry should be screened every 6 months until the age of 3

### When to screen, cont.

- From ages 3-5, children should be screened if...
  - **Parent voices concern**
  - The child has been given ototoxic medication
  - Speech and/or language is developmentally delayed
  - The child is not meeting other developmental milestones
  - There is a history of frequent ear infection
  - There is a history of allergic responses affecting the ear, nose, or throat

### Otoacoustic Emissions (OAE)

- Small sounds are delivered to the ear canal via a small, sensitive microphone that measures an echo generated by the inner ear
- The detection of the emission is dependent on normal function of the outer and middle ear
- **PREFERRED METHOD** for PAT



## Preparing to Screen

- Conduct the screening in a relatively quiet setting
- Create an environment that maximizes the cooperation of the child with the comforting assistance of familiar adults and quiet toys
- The OAE cannot be accomplished if a child is crying or physically resistant
- Complete parent interview. Inform parent that you are going to place a small microphone in the child's ear canal and that the child will hear a series of quiet sounds.
- Check equipment probe prior to use.

## Step 1

- Visually inspect the ear to be screened
  - Look front and back for abnormalities
  - Look into ear canal for obstructions
  - Abandon screening if drainage is coming out (with or without foul odor) or if child exhibits a heightened sensitivity to having their ear touched.
  - You may proceed if there is some wax in the ear canal.

## Step 2

- Select a probe tip and place it on the probe
  - The size of the ear canal will determine the size of probe tip you use
  - Choose one that is as large or slightly larger than the ear canal
  - Push tip all the way down to the base of the probe
  - Smush the foam tips down to make insertion easier. Do this by rolling tip between fingers.

## Step 3

- Turn on the equipment
- Make sure you have the power cord in case the battery is low

## Step 4

- Clip the probe to the child's clothing
  - The back of the shirt is the best location to avoid interference with the child's arms
  - Keeps cord out of child's visual field

## Step 5

- Prepare the child
- Make sure the child is comfortable and content

## Step 6

- Insert the probe
  - Take hold of the ear and gently pull it out to open the canal
  - Push the probe in with the other hand
  - The probe should stay in the ear canal on it's own.
  - Never be tempted to hold the probe in the ear during screening.

## Step 7

- Push the button on the screening unit to start the test.
- Keep an eye on the display. It will help you to know if you have a secure fit or if problems have occurred.

## Step 8

- Document the screening result.
  - The Biologic AuDx will either say "Pass" or "Refer"
  - If you get a Pass, move on to the next ear.
  - If you get a Refer, check the probe tip for wax and change the tip if necessary. Reinsert the probe and run the screening again.
  - If you get two Refers, record your result and test the other ear.

## Step 9

- Prepare to screen the other ear.
  - Remove the probe and check to make sure it is not covered in wax. Test the other ear with the same probe tip.
  - Change the tip if you cannot clean the wax off of the probe tip and it is occluding the microphone opening.
  - Record your results.

## Helpful Hints

- External noise can disrupt the test. Noise could be as simple as someone talking loudly near the child being tested.
- "Noise" can also be the child's movement. Wait to screen until the child is sitting still or with little movement.
- If the test won't run, check to make sure the probe is still in the child's ear
- So, (1) Ensure good probe fit, (2) Minimize external noise in the room, and (3) minimize internal noise caused by the child's movement.

## Helpful Hints

- Check equipment at start of the day by running your own ear.
- Elicit help from another adult to help keep child quiet and content.
- Engage the child in a listening game.
- Gently tell the child what you are going to do rather than ask their permission.
- Keep a variety of interesting toys for different ages.
- Screen while the child is asleep in a carseat or at naptime.

## Screening and the Screener's Role

- Screening:
  - Is the first step in a process of evaluating a child's overall hearing health
  - Does not diagnose
  - Identifies those at high risk for hearing loss who need further assessment

## Role of the screener

- Educate parents
- Obtaining consent
- Coordinating screening
- Documenting outcomes
- Informing parents of results
- Making referrals for follow-up as necessary

## Screener role does not include:

- Explaining the hearing screening technology to the parents
- Diagnosing hearing loss
- Describing the potential problems with hearing
- Explaining results of the medical or audiological evaluation to parents

## When to Refer

- When a child does not pass the initial screening, retest in 2 weeks.
- If the child refers again on the screening, recommend to the parents that they see their health care provider for pneumatic otoscopy or tympanometry.
- After treatment has been completed and/or the health care provider determines that the pathway to the cochlea is clear...
- Screen with OAE again. Upon Refer on screening, refer to pediatric audiologist for further testing.

## Additional Resources

- [www.infanthearing.org/earlychildhood](http://www.infanthearing.org/earlychildhood)
- <http://www.kidshearing.org/parentsateachers>
- Kerri A. Helms, MS, CCC/A
- [helmska@slu.edu](mailto:helmska@slu.edu)
- Maureen Fischer, MS, CCC/A
- [mfischer17@slu.edu](mailto:mfischer17@slu.edu)
- MAINTENANCE OF THE EQUIPMENT
  - Yearly calibration of the equipment. You will need to find someone local in your area to do this.

### Otoacoustic Emission (OAE) Screening

Otoacoustic emissions (OAE) hearing screening, used widely in hospital-based newborn hearing screening programs, represents a significant advance for screening young children. An objective measure that assesses hearing in a range of sound frequencies critical for normal speech and language development, portable OAE screening is the most practical method for screening infants and toddlers because it:

- Does not require a behavioral response from the child
- Can help to detect sensorineural hearing loss and ear anomalies affecting the pathway to the inner ear
- Is quick and painless
- Can be conducted by anyone who is trained to use the equipment and is skilled in working with children.



#### The OAE Screening Procedure

The procedure is performed with a portable handheld screening unit. A small probe is placed in the child's ear canal. This probe delivers a low-intensity sound stimulus into the ear. The cochlea responds by producing an otoacoustic emission, measured externally as an "echo," that travels back through the middle ear to the ear canal and is analyzed by the screening unit.



In approximately 30 seconds, the result is displayed on the screening unit as a "Pass" or a "Refer." Otoacoustic emissions (OAE) screening can help to detect sensorineural hearing loss occurring in the cochlea. It can also call attention to hearing disorders affecting the pathway to the inner ear.

#### Recommended Head Start OAE Screening and Follow-Up Protocol

1. An initial screening of both ears on every child (0-3) to three years of age.
2. Any ear not passing the initial (1st OAE) screening is screened again (2<sup>nd</sup> OAE) within approximately 2 weeks of the first screening.
3. If the ear does not pass the 2nd OAE screen, the child must be evaluated by a health care provider to determine whether there is an outer or middle ear condition (blockage, wax, structural anomaly, etc.) interfering with accurate completion of the OAE screening. Treatment or monitoring may be needed.
4. Once the health care provider gives medical clearance, indicating that there are no conditions present that would prevent an accurate screening, an OAE re-screen is conducted. If the ear does not pass the OAE re-screen, the child should be referred to a pediatric audiologist for a diagnostic evaluation. This referral is usually made by a health care provider in coordination with the Head Start program.

More information can be found at: [www.infanthearing.org/newbornheadstart](http://www.infanthearing.org/newbornheadstart)